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02/05/91

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: KEATING

ALTERNATE NAMES:
DOVER MINE
HANNA MINING CO.

GREENLEE COUNTY MILS NUMBER: 46C

LOCATION: TOWNSHIP 4 S RANGE 29 E SECTION 7 QUARTER NW
LATITUDE: N 33DEG 06MIN 20SEC LONGITUDE: W 109DEG 25MIN 00SEC
TOPO MAP NAME: CLIFTON - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
COPPER
GOLD
SILVER

BIBLIOGRAPHY:
USGS GEOLOGIC ATLAS CLIFTON FOLIO AZ, 1905 - ECONOMIC GEOLOGY MAP
LINDGREN, WALDERMAR THE COPPER DEPOSITS OF THE CLIFTON-MORENCI DIST. AZ., USGS PP 43, 1905
ADMMR KEATING FILE
ADMMR U FILE

DOVER COPPER CO. REFERENCES GREENLEE COUNTY

USBM "U" File

Docket 27 Feb 26, 1969 p. 674-677 Dover Copper to Phelps Dodge, Greenlee County Recorders Office

BLM District Sheet 841, 840, 830

MILS Sheet sequence number 0040110088

Map upstairs box "D"

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date 3/26/45

Name of Mine Dover Copper Co Clifton

Owner or Operator Forrest L Shire

Address 1303 E 5th St Tucson

Filing Information

File System

File No.

This chart to be used for gallons of gasoline required per month.

Mine Location 8 mi Morenci

PRESENT OPERATIONS: (check X)

Production ✓; Development ; Financing ; Sale of mine ;

Experimental (sampling) ; Owner's occasional trip ;

Other (specify)

PRODUCTION: **Past and Future.**

	Tons
Approx. tons last 3 months	
Approx. present rate per 3 months	1800 tons
Anticipated rate next 3 months	1800 "
If in distant future check (X) here	

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars	42 Ford Sedan	2500	
Light or Service Trucks			
Ore Hauling Trucks			
Compressors			
Other Mine or Mill Eqpt.			

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS: Mr Shire is engineer for the Company & is obliged to do considerable traveling to care for the interests of same

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By George A Ballam

DEPARTMENT OF MINERAL RESOURCES

REPORT TO OPA ON ACTIVE MINING PROJECT

Date 11-27-44

Name of Mine Dover Copper Co

Owner or Operator W V Tolerico

Address Rogers Hotel

Mine Location Clifton

Filing Information

File System .....

File No. .....

This chart to be used for gallons of gasoline required per month.

PRESENT OPERATIONS: (check X)

Production ✓; Development .....; Financing .....; Sale of mine .....;

Experimental (sampling) .....; Owner's occasional trip .....;

Other (specify) .....

PRODUCTION: **Past and Future.**

	Tons
Approx. tons last 3 months	
Approx. present rate per 3 months	
Anticipated rate next 3 months	
If in distant future check (X) here	

EQUIPMENT OPERATED:

Type	Quantity or Horse Power	Miles or Hours Per Month	Gallons Required Per Month
Personal Cars		1500	
Light or Service Trucks			
Ore Hauling Trucks			
Compressors			
Other Mine or Mill Eqpt.			

PRODUCT PRODUCED OR CONTEMPLATED: Name metals or minerals.

Copper

REMARKS:

ARIZONA DEPARTMENT OF MINERAL RESOURCES

By George A. Callaway

DOVER MINES MORENCI-CLIFTON

Some drilling on the Dover property near Morenci has been reported.

GWI Annual Report 7/1968

See: USGS Professional Paper #43 - Page 360
(Missing Link claim - Greenlee Co.)

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine: DOVER MINES

Date: September 12, 1957

District: Morenci-Clifton

Engineer: Lewis A. Smith

Subject:

The Dover Copper Company owns 136 claims in this area, comprising a band along the west and south borders of the Phelps Dodge properties. The principal owner is W.V.Tiscornia, of St. Joseph, Michigan.

No mining has been done since World War II when the north portion of the area was mined by Fred Sherman under a lease. This ore is on a prong of the Coronado Vein and was largely from New Gram, Anita 30, Anita 21 and the New Key claims. This vein borders diabasic dike intrusives into the Coronado Quartzsite (Cambrian) and remnants of the Longfellow Limestone (Ordovician). Replacements into the Longfellow out from the Keating Vein were mined in addition to the material taken from the vein. Most of this ore averaged 2-4% copper and was sufficiently silicious to be classed as flux ore.

Several other claims have granite porphyry, diabasic or diorite intrusive dikes or sills cutting the pre-Cambrian granite or Paleozoic formations. Locally the borders of these intrusives have shown fair mineralization, notably the Copper Plate and the Perfect "36" groups. Promising capping gossans have been mapped along the east-west De Soto Fault which is covered by the De Soto, Lukawana, Missing Link and Foxy claims. These all show copper-zinc possibilities even though relatively little development work has been done except upon the De Soto Claim.

The second type of mineralization is composed of middle to late Tertiary quartz replacement veins in the Longfellow Limestone. These are confined to a belt across the middle of the claims, largely in the Tucky and St. Joe groups of claims. Ore shipments from these averaged about $35.00 in gold. A similar quartz fault fissure vein cuts the pre-Cambrian granite along Copper Plate gulch, in the Anita 1-7 Claims. This averages 4-6 oz. silver and $2.00 gold over a length of 1200 feet and an average width of 20 feet. It has frequently been step-faulted. This vein follows a major fault, the Copper Plate Fault, which has been intruded by a granite porphyry dike in places. There is some pyritic mineralization beside the dike and some of the pyrite is coated by covellite and chalcocite.

J. E. Busch now in Scottsdale July '67
30 E. Sixth
Tempe, Ariz

can furnish information re Mike and Company

See United States Fuse + Mining Corp (file) 11/19/69

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

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DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

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Subject:			

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J. E. Busch
30 E Sixth
Tempe, Ariz
&
I am furnished information — re
Mine and Company

SUPPLIMENTARY REPORT
on
QUARTZ - BRECCIA ZONES CROSSING
THE ANITA NO. 5 AND ANITA NO. 8 CLAIMS
OF THE DOVER COPPER COMPANY

A detailed study was recently made on the quartz-breccia zones which cross the eastern half of the Anita No. 5 and Anita No. 8 Claims. These are indicated, in red, on the accompanying geological map.

These zones are closely associated with the highly silicified gossan-like zones on the Anita No. 5. The breccia zones cut the gossans along their long axes. The fractures, causing the brecciation, were doubtless the avenues along which the silica and later pyrite were introduced. The quartz-breccia was strongly impregnated by bright red iron oxides and hydroxides (limonite) derived by the oxidizing of pyrite which was in considerable concentration in the un-oxided material. As most of the iron oxide is distinctly migratory in character, and very little is indigenous (deposited or precipitated within the area of the original sulphide grain) it is most unlikely that copper was present in the original sulphides, except in relatively small amounts. Copper tends to precipitate indigenous limonite. Copper will precipitate some migratory limonites which may encounter it but the character of these limonites is usually evident.

Strongly reactive rocks will precipitate copper and iron oxidized minerals. (Malachite, Chrysocolla, Azurite, Cuprite or Hematite Siderite and Limonites). Indigenous limonites are often precipitated by limestone in the absence of copper. Since there is a considerable amount of siderite (iron carbonate) present in the gossans and breccia zones, and no observable copper minerals, it is evident that little copper was originally present. This condition is local, as compared to adjoining areas, leading to the belief that perhaps the breccia zones and gossans may have been formed after copper mineralization occur in this region. The only other conclusion is that this area was not penetrated by the south westward moving copper-bearing hydrothermal solutions, originating in the Morenci-Metcalf stocks. High pyritic zones commonly reach out past the copper, somewhat; even forming a halo around the copper bearing sulphide areas. Thus a strong pyrite zone could easily exist without copper being present. Every indication points to the absence of marketable copper ore in the zone areas.

The absence of residual gold, or silver, is unfavorable, as gold or silver rarely is leached completely. The other veins in the Anita group usually carry appreciable residual gold and silver values. The writer has observed the outcrop of many gold-silver mines and has never found one in which the oxidized capping was barren. This leads to the obvious conclusion that the hope for enriched gold, or silver, in depth is meagre. The presence of some manganese dioxide is not unfavorable for gold enrichment, provided the gold was present in the original sulphides. However, it is the writers conclusion that the gold probably was absent originally.

In summary, is is concluded that the breccia zones, and their associated gossan zones thus far have shown sufficient surface evidence to warrant extensive prospecting of the zones in depth. It is therefore recommended that the Anita No. 5 and Anita No. 8 Claims be held in status quo, or dropped.

Lewis A. Smith
Geologist

MEMORANDUM:

The entire Dover Copper Co property was leased by the Auto Specialties Mfg., Co., St. Joseph, Michigan, with Arthur Houle, of Tucson, as consulting engineer, and Fred W. Sherman in charge of mining operations.

During the life of the lease the total value of ore produced amounted to $126,754.22 - including Govt premiums. Mining operations ceased about April 15, 1945.

All of this production (principally copper, with some gold and silver) was from the Keating vein. Very little development was done on other parts of the property. The Keating vein has been mined to a depth of about 600 ft below its apex or cropping. It is close to the old Coronado -- and is probably allied to that great fissure -- where mining was carried to the 1100 ft depth before lean sulphides encountered.

D. V. Mulhern, attorney, 302 Ariz Title Bldg., has maps, data, etc.

Dec. 16, 1947.

(note -- the Keating vein, prior to Dover ownership, and during Dover ownership, up to about 1933, has produced about $1,500,000.00, over and above that stated above.)

Auto Specialties Mfg. Co.
LESSEE
DOVER COPPER MINES

PAYROLL

No. 2131

CLIFTON, ARIZONA _____ 19____

PAY TO THE ORDER OF _____ $ _____

_____ DOLLARS

PROGRESSING ARIZONA
STATEWIDE BANKING SERVICE
VALLEY NATIONAL BANK

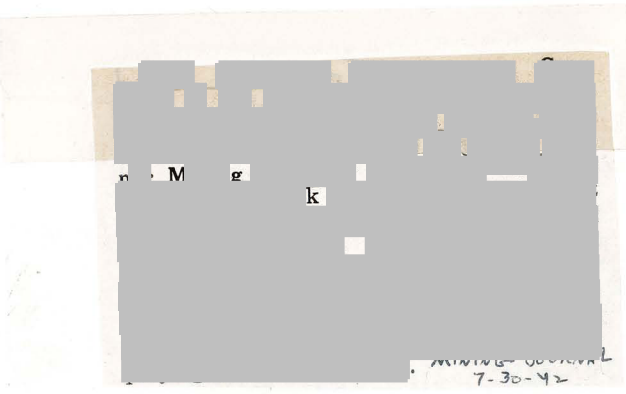
AUTO SPECIALTIES MFG. CO.—LESSEE
DOVER COPPER MINES

VALLEY NATIONAL BANK
MEMBER FEDERAL RESERVE SYSTEM
91-39
11
CLIFTON, ARIZONA
PRINTED IN ARIZONA

By _____

DISTRICT:
METALS: CU E

OPERATOR AND ADDRESS:		MINE STATUS	
DATE:		DATE:	
5/1/44	Fred Sherman, Box 641, Morenci	5/1/44	Shipping
4/45	Frank Cox & Co., Clifton	4/45	"
		3/46	Idle



MINING JOURNAL
7-30-42

Anita No. 1

Report by Lewis A Smith 1956

This claim is cut by a well defined and strongly shattered monzonite porphyry dike which cuts the Cambrian quartzite and the pre-Cambrian granite beneath. The dike strikes north 50° east and dips at varying steep angles to the south. Contact metamorphism extends out for a considerable distance on both sides of the dike. It is off-set, on the east, by the No. 6 fault at about 1000 feet east of the northwest corner of the claim. East of the No. 6 fault, the structure is obscured by detritus and stream fill. The dike, on the west, plunges under a diorite porphyry sill after having been disrupted by No. 7 fault and a couple of minor faults. This complex of faults has created a locus of intense shattering and mineralization. The bulk of this locus occupies the southwest fourth of the claim and extends over into the west part of the Anita No. 2 claim. The center of this locus is about 100 feet northeast of the southwest corner of the Anita No. 1.

The oxidized capping within, and around, the locus is favorable, showing that the area was invaded by sulphides of iron and copper. The copper has been leached out and transported downward for subsequent enrichment in depth. This capping, which is characteristic of all the main shattered zones on all the Anita claims, is typical of the high iron-copper type found over the Clay Orebody at Morenci. Samples, taken from the dike, and adjacent areas, averaged about 0.04% copper or about the same as the waste capping at Morenci. Two samples, over 3 to 4 foot widths, were taken from the porphyry dike in the locus area, near the intersection of the dike with the No. 7 fault. These averaged .007 ounces of gold, 0.785 ounces of silver, and 0.04% copper. It is the writers opinion that the gold and silver values followed the No. 7 fault over from the Gold Belt Vein and Producer Fault zone to the south, both of which carried strong copper-gold-silver values well below the surface. The gold-silver values there are noteably stronger down in the deep canyons than up on the hills, indicating enrichment of the gold and silver, as well as copper. In the arid Southwest, it is quite common to find strong gold-silver enrichment well below the present surface. At Pearce, Cochise County, Arizona, the rich bonanza ores were entirely created by gold and silver enrichment. Near the surface the values were relatively weak, but it is estimated

that the average tenor of gold and silver in the enrichment zones below, was nearly twelve times that found in the oxidized capping. Gold and silver enrichment occurs where there is adequate MnO_2, chlorides, and strong acid solutions. All these conditions were noteably present at Pearce, and were also present in this area especially in the shatter zones lying in the Anita 1,2,3,4 and 9 claims. The writer has found no reason to believe that the Pearce conditions could not be somewhat duplicated here. The writer believes that the surface indications in the Anita No. 1 shatter locus are characteristic of all shatter zones in the other Anita and Margot Claims. He will not, therefore, discuss the other shatter zones separately, as they fit into a general pattern. The gold-silver values should be adequate for patent, without considering the other favorable surface indications.

Anita No. 2

This claim is covered by stream fill and detritus with the exception of a small area in the western fourth. However, in the west part of the claim the strong major No. 1 fault zone is exposed on the south side of the gulch. The granite and overlying quartzite have been intensely shattered and flooded by limonites derived from pyrite strongly coated by chalcocite (Cu_2S). The major fault zone is well mineralized in the Margot 12 and 14 and Keystone claims to the east a few thousand feet and in the Gold Belt Claims immediately to the southwest. Dikes of diabase, monzonite porphyry or granite porphyry, along this fault, doubtless brought in the copper mineralization from the main monzonite and granite porphyry stocks of the Morenci-Metcalf district. The conditions in this fault zone are similar to those found in the famous Coronado Vein fault to the north. As the oxidized capping over known orebodies elsewhere along the fault is the same as that in the Anita No. 2, it is reasonable to suppose that similar enriched ores would be found in depth under the Anita No. 2. Since the oxidized capping in all the Anita Claims is similar, there is little need for a further discussion with respect to the others. The shatter locus, discussed with respect to the No. 1, extends over into the No. 2 claim. However, the intensity of shattering along the No. 1 fault zone is far greater than in the No. 1 claim locus, indicating that

the depth to unoxidized sulphides would probably be greater than on the No. 1 or No. 3 claims. This condition is likewise aggrevated by the gulch which has covered most of the Anita No. 2 claim for a long time. The No. 7 Fault slightly off-sets the No. 1, 25 feet northeast of the southwest corner of the Anita No. 2. Limonites similar to those on the No. 1 here carried considerably less gold and silver. This is doubtless due to excessive leaching along the wide shatter zone of the No. 1 Fault. Since MnO_2 strongly saturates the No. 1 Fault zone there is little chance of gold remaining near the surface for long. In conclusion, it is believed that, due to favorable copper, gold and silver mineralization on all sides of the No. 2, there is no logical reason why this same mineralization should not be present in the No. 2 except that it would be at somewhat greater depths. The quartz vein on the No. 3 claim dips under the wash covering the No. 2 claim and would be intercepted in the west half of the No. 2 claim.

Anita No. 3

The Anita 3 Claim is crossed by the strong northeast - southwest graben fault. The north branch of the fault crosses the south boundary 600 feet east of the northwest corner and leaves the claim 50 feet from the northeast corner following a curving course. The south branch intersects and is off-set slightly by the No. 6 Fault as it crosses the boundary between the Anita 2 and 3, 850 feet east of the southwest corner, and leaves the claim at a point 300 feet south of the northeast corner. The two branches intersect at a point midway between the southwest and southeast corners of the Margot 14 claim, 750 feet east of the northeast corner of the Anita 3. A good quartz vein well mineralized by copper in the Margot 12 and 14 claims, follows the north branch to a point 450 feet west of the southeast corner of the Anita 3 and 60 feet north of the south line. At this point it evidently splits and the major part leaves the fault and traverses the Cambian quartzite to the west boundary of the claim where it crosses over into the Anita 4. The vein varies from 2 feet up to 6 feet in width and dips 60° to 70° to the south, pitching under the Anita 2. The vein is filled by sugary and vuggy quartz showing excellent limonite mineralization. Samples 2 to 6 feet wide

taken at intervals along this vein, showed gold and silver values, ranging from .013 ounces gold and 0.502 ounces silver, (where the vein leaves the No. 1 fault) to .005 ounces gold and 0.285 ounces silver, (where the vein is cut off by No. 7 fault in the Anita 4 claim). Another assay shows 0.012 ounces gold and 0.502 ounces silver, (where the No. 6 fault displaces the vein). A fourth sample, taken along a minor fault which parallels the west boundary of the claim, shows 0.08 ounces gold and 0.25 ounces of silver. Evidence of extensive leaching are present along the entire exposure of the vein. It is, therefore, probable that much better gold and silver values would be obtained in depth. The oxidized capping indicates extensive copper-iron sulphide leaching and consequently the possibility of copper enrichment at a reasonable depth below the present surface. A similar vein, the Copper Plate, crossing the Margot 19,20 and 21 claims to the north, carries enriched sulphides at depths ranging from 40 to 100 feet below the surface. Every surface evidence, seen along the Copper Plate vein, is present along the vein cutting the Anita No. 3 and 4 claims. It is recommended that exploration at some future time, by drilling or tunneling, be done along this vein in depth. The relatively persistant gold and silver values along the vein should be adequate to patent the Anita 3 and 4 claims.

Anita No. 4

The Anita 4 is cut by the same vein that traverses the Anita 3 and shows similar conditions. This vein is cut off by No. 7 Fault at a point 300 feet west of the northeast corner, and its continuation is lost beneath the detritus of the wash to the south. The extension of the vein, westward, was found on the Gold Belt claim to the southwest and was worked for gold and silver in the past. No records of production or values are available. A small pile of quartz ore was left on the dump and assayed about .010 ounces gold and 1.201 ounces silver. In the west half of the claim, a strong brecciated zone, which trends northeast and southwest, is bordered on both sides by a heavy gossan zone in the Longfellow Limestone. This zone extends northward into the Anita No. 5. The limestone in the gossan zone is extremely shattered and impregnated by silica and limonite. Such gossans, or "iron

caps" are usually prospectable. It is recommended that this zone be prospected, but at no great expense because of its limited area. Similar areas in other parts of the district sometimes yield lead-zinc values as well as copper. As studied, thus far, the capping indicates the presence of copper, only.

Anita No. 5

The vein which crosses over from the Anita 3 to the Anita 4 crosses the extreme southeast corner of the Anita 5. This is not of consequence as the vein dips southward off the claim even though values of gold and silver were obtained from this segment of the vein. The gossan zone, which diagonally splits the claim in two, looks much more promising. This zone is indefinately connected to the gossan zone on the Anita No. 4. The zone is cut off by the No. 7 Fault at a point 40 to 60 feet north of the north side line in the Anita 8 Claim. The gossan area is apparently terminated along the contact between the Morenci Shale and the Longfellow Limestone. This contact extends from near the southwest corner diagonally across the claim to the middle of the north side line. The shale is locally decidedly less mineralized than the limestone to the east. It is probable that the mineralization in the limestone could continue westward under the shale for some distance, leading to the recommendation that prospecting would best be done immediately under the shale on the shale-limestone contact. The chances of valuable mineralization would be better under the shale cap which would act as a dam to the rising primary solutions, causing a concentration of primary sulphide mineralization in a relatively narrow zone immediately below the contact in the more easily replaced limestone. In conclusion, it is believed that the prospecting of this gossan area constitutes the only hope of discovery of marketable material on the Anita 5. The gossan is limited in area. It is, therefore, recommended that the claim be dropped or traded for the No. 2 claim which has for more possibilities.

Anita No. 8

No surface values were found on the No. 8 claim, but in the east part of the claim the chances of copper, in depth, are favorable along a strong fracture which

crosses the east boundary 250 feet south of the northeast corner. Evidence of strong copper and iron mineralization are seen in the limonite zones bordering the fault. Vein breccia lies in the fault itself, but no unbroken vein material was found. A tunnel was driven to a depth of 20 feet along this fault, but was not deep enough to disclose anything of value. No gold or silver was indicated by the assays taken so far. It is recommended that a further more detailed study be given to the eastern part of this claim before final judgement is passed.

Anita No. 9

The Anita 9 is traversed by a strong quartz-breccia vein and fracture zone (No. 5 fault) which enters the claim 100 feet north of the southwest corner and parallels the south line for 360 feet. It then curves northward diagonally across the claim, disappearing 600 feet further on, under the fill of a large wash which crosses the middle of the claim. The same fracture zone reappears in the pre-Cambrian granite on the east side of the gulch, and crosses the north boundary 450 feet west of the northeast corner of the claim. About 90 feet further on, it is off-set to the north by No. 3 fault, and thence continues, parellel to the Copper Plate Vein, for 1600 feet before it splits up and becomes less definable in the Margot 21 claim. It crosses into the Margot 21 claim at a point 30 feet north of the southwest corner. The faulted segment of the Copper Plate Vein crosses the north boundary of the Anita 9 at approximately 750 feet east of the northwest corner, but becomes less persistant in the limestone comprising the northwest two-fifths of the Anita 9. A four foot sample from the south vein (along No. 5 fault) shows .025 ounces gold and 0.775 ounces silver and very good oxidized capping from copper-iron mineralization. This capping campares favorably with that seen over the Copper Plate Vein in the Margot group. The two vein fractures are designated as faults 4 and 5 on the geological map and the area between them has been dropped down with respect to the area north of No. 4 and south of No. 5 faults. (This structure is called a graben). There is every reason to prospect the Anita 9 ground for copper, as well as gold and silver.

The No. 5 fault disappears under the basalt capping at a short distance west of the Anita 9 claim line. It shows a decided narrowing tendency at the point of disappearance. As in the Anita 1,3 and 4 claims, the gold and silver values are adequate for patent purposes, disregarding favorable oxidized capping indications of copper. It should also be patentable because of the extension of the Copper Plate Vein which contained commercial copper-gold-silver values.

October 1, 1942

Mr. Fred W. Sherman
Dover Copper Company
Clifton, Arizona

Dear Mr. Sherman:

We are compiling a list of the potential copper producers in the state of Arizona at the request of the Army and Navy Munitions Board, which compilation will be used in formulating a policy to speed up production and probably a plan to render federal assistance where necessary.

I am enclosing a Mine Owner's Report form and we would like to have in our files a report on the Dover Copper Company's holdings with detailed highlights regarding the property. In addition we would like an added paragraph on the problems connected with your property and under this heading we would like to know why the property is not producing, what production and what grade of ore could be obtained, how long it would take to get this production and how much money would be involved, as well as any other problems regarding difficulties in getting this production.

I would appreciate having this information for our files so that we might promptly finish our report.

Yours very truly,

J. S. Coupal, Director

JSC:LP
Enc.